ATTACHMENT #12
CONTAINERS, STORAGE & WASTE PILES

12.1 HAZARDOUS WASTE STORAGE AREAS

Hazardous wastes received and generated at the Chemical Agent Munitions Disposal System (CAMDS) in support of test plans and projects are stored in the hazardous waste storage areas listed below. These storage areas have been constructed to meet all environmental standards. Storage of waste is maintained at levels consistent with the test projects in progress at any time. During completion of a project, the wastes are collected, stored, and packaged appropriately for proper storage and disposal.

CAMDS hazardous waste storage areas are listed below.

- Building 4104
- Building 4105
- Equipment Test Facility (ETF)
- Chemical Test Facility
- General Purpose Facility (GPF)
- Munitions Holding Area (MHA) Igloo
- Munitions Holding Area (MHA) Revetment Area
- Metal Parts Furnace (MPF) Area
- Residual Storage Area (RSA)
- Segregator/Explosive Containment Cubicle No. 1 (SEG/ECC No. 1) Unpack Area (UPA)
- Material Treatment Facility (MTF)
- Toxic Maintenance Facility (TMF)
- Ventilated Storage Area (VSA)
- Multipurpose Demilitarization Machine Processing Area and Conveyor Gallery (MDMCG)
- MPF Charge Car Room
- Multipurpose Demilitarization Facility (MDF) Toxic Unpack Area (MDF Toxic UPA)

- Bulk Item Facility Drain Bay (BIF)
- MDF/BIF Airlock
- MDF/BIF Loading Area

The following subsections provide the required detailed information pertaining to these storage facilities. Building 4104 and 4105 are not located at the CAMDS site and are discussed separately.

12.2 BUILDING 4104 - HAZARDOUS WASTE STORAGE

Building 4104 is used to store wastes generated from the operation and maintenance of the CAMDS facility and other facilities located at Deseret Chemical Depot (DCD). The building is also used to store components of process equipment that have been removed from CAMDS, but will be used again. All items (wastes and stored equipment) stored in building 4104 have been analyzed and found to be agent free using an extraction procedure or head space monitoring for waste streams which do not have an extraction procedure. The wastes can be described by the following EPA and State of Utah waste codes:

D001 (Ignitability)	D034 (Hexachloroethane)
D002 (Corrosivity)	D035 (Methyl Ethyl Ketone)
D004 (Arsenic)	D037 (Pentachlorophenol)
D005 (Barium)	D039 (Tetrachloroethylene)
D006 (Cadmium)	D040 (Trichloroethylene)
D007 (Chromium)	D043 (Vinyl Chloride)
D008 (Lead)	F001 (Spent Solvent Listings)
D009 (Mercury)	F002 (Spent Solvent Listings)
D010 (Selenium)	F003 (Spent Solvent Listings)
D011 (Silver)	F005 (Spent Solvent Listings)
D018 (Benzene)	U037 (Chlorobenzene)
D019 (Carbon Tetrachloride)	U044 (Chloroform)
D021 (Chlorobenzene)	U127 (Hexachlorobenzene)
D022 (Chloroform)	U131 (Hexachloroethane)
D027 (1,4-Dichlorobenzene)	U165 (Naphthalene)
D028 (1,2-Dichloroethane)	U210 (Tetrachloroethylene)
D029 (1,1-Dichloroethylene)	F999 (Residue from Demilitarization
D032 (Hexachlorobenzene)	of Chemical Agents)
	P095 (Phosgene)
	P999 (Chemical Warfare Agent)

The base of Building 4104 is divided into two sections for the purposes of waste management. One section is used to store drums of waste containing free liquids.

The other section is used to store process equipment (e.g. ducting, conveyor systems, electric motors, etc.) that have been removed from CAMDS but are intended to be reused.

12.2.1 Description of Containers

Hazardous wastes generated on-site are stored and offered for transportation in containers conforming to Department of Transportation (DOT) specifications. Containers used to store hazardous wastes in Building 4104 shall include:

- 8, 30, and 55-gallon steel drums with removable heads
- 8, 30, and 55-gallon steel drums without removable heads
- 85-gallon steel drums with removable heads (overpack drums)
- 85-gallon polyethylene drums with removable heads (overpack drums)
- 1, 3, 5, 8, 15, 30 and 55-gallon polyethylene drums without removable heads
- 1, 3, 5, 8, 15, 30, and 55-gallon polyethylene drums with removable heads
- 170-gallon ton containers
- Other containers that are DOT approved.

The selection of the appropriate drum for a particular waste is based on the compatibility of the container with the waste the container will hold, and the physical form of the waste. Liquid corrosive wastes are stored in polyethylene containers without removable heads. Liquid non-corrosive wastes are stored in steel drums without removable heads.

The following non-DOT containers may also be used at Building 4104 to store hazardous wastes with no free liquids:

- SPORT, Steel box with gasketed lid, overall size 100 in. long, 40 in. wide, 38 in. high.
- Lined wood or fiberboard crates and boxes.
- Plastic bags, polyethylene

NOTE: Plastic bag containers may be placed in wooden boxes or metal wire baskets, and stacked.

Liners may be reused after being cleaned, inspected, and verified as having no leaks.

Each container of hazardous waste will be labeled in accordance with EPA regulations.

12.2.2 Container Management Practices

Only containers of hazardous waste that have been analyzed for the presence of chemical agent (and the results of which show no agent detected) are stored in Building 4104. Containers are loaded on a flatbed or van type truck for transportation to the building. All roads used by the vehicles transporting hazardous waste are within the facility boundaries and are paved.

Containers of hazardous waste are loaded on trucks using a forklift. Single barrels are moved either by equipping the forklift with barrel tongs, or by placing the container on a

pallet prior to lifting. A single barrel placed on a pallet prior to movement will not be strapped to the pallet since the area available for storage on a pallet is four times greater than the area occupied by a single drum. The drum can be positioned in the center of the pallet, which maximizes the stability of the lifting platform (i.e., the pallet).

The risk of releasing a hazardous waste to the environment is minimized because:

- The roads used to transport wastes are in good repair and easy to negotiate with little traffic
- Flat bed trucks have railing around the bed to prevent containers from sliding off the bed
- Full drums are moved either on pallets or with forklifts equipped with barrel tongs, which minimizes the possibility of damaging the container during loading.

The facility has controlled access. The doors are locked and only authorized personnel are allowed access. Containers of hazardous waste are kept closed, and opened only to add or remove waste, or to collect additional samples. Inspections of container storage areas occur weekly, while hazardous waste is being stored, during which time, any container found to be deteriorating, or corroding is overpacked.

The storage arrangement that will be used to store containers holding hazardous wastes with free liquid is as follows (assuming all containers in storage area are 55-gallon drums):

- The area used to store containers of hazardous wastes with free liquids will be located on the southwest side of Building 4104, bordered by the back, side, and front walls, and be limited to an area measuring 22 ft. x 70 ft (width of building).
- Secondary containment for containers will be provided by drip pans or flexible secondary containment products, with a maximum of eight containers per pan (i.e., two pallets of containers).
- All containers will be stored on pallets, with the containers and pallet being placed in a drip pan or flexible secondary containment.
- The maximum number of 55-gallon drums per pallet is four. (Smaller sizes will allow a larger number.)
- The maximum number of pallets per row is nine.
- The maximum number of rows is three.
- Fifty-five gallon drums will be stacked no more than two high.
- A minimum aisle space of two feet will be maintained between adjacent rows.

The maximum number of containers that can be stored using this arrangement is:

2(stacks) x 4(drums/pallet) x 9(pallets/row) x 3(rows) = 216 drums, or 11,880 gallons, or the equivalent volume of 216 55-gallon drums if other containers are used.

Containers other than 55-gallons will affect the storage arrangement since the use of larger containers will not allow for as tight a packing arrangement. If 85-gallon overpacks are used, the amount of maximum container storage will decrease because the uniform packing arrangement made possible by using all 55-gallon containers will be disrupted. Ton containers can be stacked up to four levels high (as in Area 10 igloos), using a pyramid-type (e.g., 6-5-4-3 bottom to top) arrangement elevated above the base and flexible secondary containment that meets the requirement for providing capacity to contain 10% of the volume of the ton containers or the volume of the largest container (170 gallons).

An area is kept clear in front of the rows to allow for space in the event that a container at the back of any must be retrieved. The pallets that were in front of the one that the particular container was on would be moved temporarily into this area, and then put back into the storage arrangement specified above after the sought after container was retrieved.

12.2.3 Inspections

There are two types of inspections performed. The first inspection is of the storage area itself and the second is of the containers. The storage area is inspected for warning signs, condition of the storage area and the containment system. The containers are inspected for leaks, deterioration, and general condition. Inspections of container storage areas occur weekly, while hazardous waste is being stored, during which time, any container found to be deteriorating, or corroding is overpacked and any deficiencies are noted. Any deficiencies observed during the inspection are noted on the inspection form and repairs or corrections are initiated within 24 hours. If a deficiency in the storage area secondary containment system is identified and corrective action is not initiated within the 24-hour timeframe, any hazardous waste stored in this area must be removed or an alternative means of secondary containment must be provided. Weekly storage area inspections are detailed in Attachment 5.

12.2.4 Secondary Containment System Design and Operation

The base of Building 4104 is completely enclosed by the building frame, which is comprised of a steel frame and roof, aluminum sided wood frame front wall, and cinder block back and sidewalls. The base is a bare concrete slab measuring 70 feet by 140 feet. Drainage is not provided for and there are no sumps, drains, or drain ditches poured into the concrete base. There is no containment berm surrounding the base where containers holding hazardous wastes with free liquids are stored.

Secondary containment is provided by the use of drip pans or other flexible secondary containment products (see 12.4.3.1 for descriptions, dimensions, and capacities). Fifty-five gallon drums are stored four to a pallet; two pallets are placed in each drip pan, which provides secondary containment capacity equal to the volume of the largest container stored inside the drip pan. Ton containers can be stacked up to four levels high (as in Area 10 igloos), using a pyramid-type (e.g., 6-5-4-3 bottom to top) arrangement elevated above the base and flexible secondary containment that meets the requirement

for providing capacity to contain 10% of the volume of the ton containers or the volume of the largest container (170 gallons).

The dimensions of the each drip pan are 56 in. x 56 in. x 5 in., which equals 68 gallons. The pallet placed inside the drip pan and used to elevate the container above any accumulated liquids displaces a volume of approximately 12 gallons leaving a secondary containment capacity of 56 gallons, which is the volume of the largest container inside the containment area.

The use of drip pans/flexible secondary containment in conjunction with a storage base that is made of concrete, elevated above the surrounding terrain, and is completely enclosed provides protection to the environment that is equivalent to an uncovered secondary containment area composed of a sealed concrete base and perimeter berm.

12.2.5 Containment System Drainage

There are no provisions for drainage in the design or construction of the base of Building 4104. The floor does not slope, nor are there any drains, gutters, or sumps. Liquids are prevented from accumulating on the base of Building 4104 by the building shell, the elevation of the base above the surrounding grade, and the drip pans/flexible secondary containment.

Drainage is not provided for in the drip pans/flexible secondary containment. However, the containers, which use these systems for secondary containment, are elevated above the bottom of the secondary containment by an internal support and the pallet the containers are stored on. Accumulated liquids are removed from the drip pans/flexible secondary containment using an absorbent material.

12.2.6 Containment System Capacity

The net capacity of each drip pan is 56 gallons, which is a volume greater than the largest container inside the drip pan (55 gallons) and is also a volume greater than 10 percent of the total volume of containers stored inside the drip pan. Flexible secondary containment for ton containers or any container meets the requirement for providing capacity to contain 10% of the volume of the containers of the volume of the largest container.

12.2.7 Control of Run-on

Run-on to the drip pans/flexible secondary containment and storage base is controlled by the following:

(1) the base is elevated two feet above the surrounding grade;
(2) the building shell completely encloses the storage area; and
(3) all the containers are kept from contacting the base by the drip pan/flexible secondary containment they are stored in and additionally are elevated above the base by the pallet which prevents the container from contacting any liquids that may accumulate in the drip pan/flexible secondary containment.

12.2.8 Removal of Liquids from Containment System

Liquids are removed from the drip pans/flexible secondary containment by: (1) transferring the failed drum to an overpack; (2) removing the remaining containers and the pallet they are stored on and transferring them to other secondary containment; (3) absorbing the spilled liquid waste with an absorbent material; and (4) containerizing the spent absorbent material. The spent absorbent is managed as a hazardous waste; no analysis of the collected material is necessary since the waste that is absorbed is the same as what is in the failed container. An analysis or user knowledge already exists for determining any hazard.

12.2.9 Special Requirements for Incompatible Wastes

All wastes are placed in new containers or containers that have been washed. Wastes that are not compatible with each other are not placed in the same drum. Containers holding waste that is incompatible with other waste in the storage area are separated. A barrier or overpack will be placed around the container(s) holding the incompatible waste to stop the waste from migrating between other containers stored at this storage area.

12.3 BUILDING 4105 - CONTAINERIZED HAZARDOUS WASTE STORAGE

Building 4105 is identical in design to Building 4104 and is also used to store wastes generated from the operation and maintenance of the CAMDS facility and other facilities located at DCD. All items (wastes and stored equipment) stored in Building 4105 have a minimum decontamination designation of 3X (no agent detected at the time of monitoring). Only hazardous wastes that do not contain free liquids are stored in Building 4105. The following EPA and State of Utah waste codes can describe these wastes:

D004 (Arsenic)	D035 (Methyl Ethyl Ketone)
D005 (Barium)	D037 (Pentachlorophenol)
D006 (Cadmium)	D039 (Tetrachloroethylene)
D007 (Chromium)	D040 (Trichloroethylene)
D008 (Lead)	D043 (Vinyl Chloride)
D009 (Mercury)	F001 (Spent Solvent Listings)
D010 (Selenium)	F002 (Spent Solvent Listings)
D011 (Silver)	F003 (Spent Solvent Listings)
D018 (Benzene)	F005 (Spent Solvent Listings)
D019 (Carbon Tetrachloride)	U037 (Chlorobenzene)
D021 (Chlorobenzene)	U044 (Chloroform)
D022 (Chloroform)	U127 (Hexachlorobenzene)
D027 (1,4-Dichlorobenzene)	U131 (Hexachloroethane)
D028 (1,2-Dichloroethane)	U165 (Naphthalene)
D029 (1,1-Dichloroethylene)	U210 (Tetrachloroethylene)
D032 (Hexachlorobenzene)	F999 (Residue from Demilitarization
D034 (Hexachloroethane)	of Chemical Agents)
	P095 (Phosgene)
	P999 (Chemical Warfare Agent)

12.3.1 Containers Without Free Liquids - Test for Free Liquids

Hazardous wastes that are generated through a process that give the waste a possibility of containing free liquids will be analyzed using the Paint Filter Test (SW 846, Method 9095).

Contaminated soil generated from the cleanup of hazardous substance spills will also be analyzed for the presence of free liquids.

Activated charcoal will not be analyzed for the presence of free liquids since the activated charcoal is used to filter gases only and does not contact liquid phase fluids.

12.3.2 Description of Containers

Hazardous wastes generated on-site are stored and offered for transportation in containers conforming to DOT specifications. Containers used to store hazardous wastes in Building 4105 include:

- 8, 30, and 55-gallon steel drums with removable heads
- 85-gallon steel drums with removable heads (overpack drums)
- 85-gallon polyethylene drums with removable heads (overpack drums)
- 1, 3, 5, 8, 15, 30, and 55-gallon polyethylene drums with removable heads
- 170-gallon ton containers
- Other containers that are DOT approved.

The selection of the appropriate container for a particular waste is based on the compatibility of the container with the waste the container will hold, and the physical form of the waste. Solid debris and granular wastes such as brine salts, spent activated charcoal, and contaminated soil are normally stored in steel drums with removable heads. If these wastes are configured in a form not suitable for storage in available containers, they may be stored in plastic lined wood or fiberboard crates or boxes.

The following non-DOT containers may also be used at Building 4105 to store hazardous wastes with no free liquids:

- SPORT, Steel box with gasketed lid, overall size 100 in. long, 40 in. wide, 38 in. high.
- Lined wood or fiberboard crates and boxes.
- Plastic bags, polyethylene

NOTE: Plastic bag containers may be placed in wooden boxes or metal wire baskets, and stacked.

Liners may be reused after being cleaned, inspected, and verified as having no leaks.

Each container of hazardous waste will be labeled in accordance with EPA regulations.

12.3.3 Container Management Practices

Only containers of hazardous waste that have been monitored for the presence of chemical agent (results showing no agent detected) are stored in Building 4105. Containers are loaded on a flatbed or van type truck using a forklift. All roads used by the vehicles transporting hazardous waste are within the facility boundaries and are paved.

Containers of hazardous waste are lifted onto transport vehicles using a forklift. Forklifts equipped with barrel tongs, or placed on a pallet prior to lifting handle single containers.

The risk of a release to the environment is minimized because:

- The roads used are paved and easy to negotiate with little traffic
- Full drums are moved either on pallets or with forklifts equipped with barrel tongs, which reduces the risk of the containers being damaged during material handling
- Containers are prevented from falling off the trucks by an enclosed cargo bay (i.e., railed flatbeds).

The facility has controlled access. The doors are locked and only authorized personnel are allowed access. Containers of hazardous waste are kept closed, and opened only to add or remove waste, or to collect additional samples. Inspections of container storage areas occur weekly, while hazardous waste is being stored, during which time, any container found to be deteriorating is overpacked.

The storage arrangement that will be used in Building 4105 is as follows (assuming all containers in storage area are 55-gallon drums):

- The area used to store containers of hazardous wastes without free liquids will be the entire area of the base of Building 4105, which measures 140 ft. x 70 ft. (width of building).
- All containers will be prevented from contacting the floor by either a pallet or through stacking.
- The maximum number of 55-gallon drums per pallet is four. (Smaller sizes will allow a larger number.)
- The maximum number of pallets per row is 10.
- The maximum number of rows is 19.
- Containers will be stacked no more than two high.
- A minimum aisle space of 2.5 feet will be maintained between adjacent rows.

The maximum number of containers that can be stored using this arrangement is:

2(stacks) x 4(drums/pallet) x 10(pallets/row) x 19(rows) = 1,520 drums, or 83,600 gallons, or the equivalent volume of 1,520 55-gallon drums if other sized containers are used. Ton containers can be stacked up to four levels high (as in Area 10 igloos), using a pyramid-type (e.g., 6-5-4-3 bottom to top) arrangement elevated above the base

An area shall be kept clear in front of the rows to allow for space in the event that a container at the back of any row must be retrieved.

12.3.4 Inspections

There are two types of inspections performed. The first inspection is of the storage area itself and the second is of the containers. The storage area is inspected for warning signs, condition of the storage area and the containment system. The containers are inspected for leaks, deterioration, and general condition. Inspections of container storage areas occur weekly, while hazardous waste is being stored, during which time, any container found to be deteriorating, or corroding is overpacked and any deficiencies are noted and corrected. Any deficiencies observed during the inspection are noted on the inspection form and repairs or corrections are initiated within 24 hours. If a deficiency in the storage area secondary containment system is identified and corrective action is not initiated within the 24-hour timeframe, any hazardous waste stored in this area must be removed or an alternative means of secondary containment must be provided. Weekly storage area inspections are detailed in Attachment 5.

12.3.5 Container Storage Area Drainage

The design of Building 4105 is identical to that of 4104. There are no provisions in the design of the base for drainage; however, elevating the base of these buildings above the surrounding terrain, and the building shell, which covers the entire base, prevents run-on. In addition, all containers stored in Building 4105 are stored on pallets, which prevent the container from contacting accumulated liquids.

12.3.6 Special Requirements for Incompatible Wastes

All wastes are placed in new containers or containers that have been washed. Wastes that are not compatible with each other are not placed in the same drum. Containers holding waste that is not incompatible with other waste in the storage area are separated. A barrier or overpack will be placed around the container(s) holding the incompatible waste to stop the waste from migrating between other containers stored at this storage area.

12.4 GENERAL INFORMATION FOR CAMDS SITE HAZARDOUS WASTE STORAGE

The following sections describe the general requirements for the waste storage areas at the CAMDS site.

12.4.1 Hazardous Waste Chemical Munitions

The only chemical agent munitions designated as hazardous waste are M-55 rockets. Although they have not been officially designated as hazardous waste, leaking chemical

agent munitions will be managed in accordance with hazardous waste rules per agreement between the Army and the State of Utah. P999 wastes may be stored in any approved container storage area.

12.4.2 Facility Aisle Space Requirements

A site plan of CAMDS can be found in Attachment 11. All areas of the facility are accessible via the fully paved road system. This road system is capable of permitting the unobstructed movement of personnel and the movement of fire protection; spill control, and decontamination equipment to any operating area within the facility. Facility operating procedures prohibit the obstruction of roadway areas.

Within the buildings, all hallways are short and provide immediate access to the exit doors. Aisle space in the storage areas for drums and containers provides ample access for personnel; forklifts where applicable, fire protection equipment, and spill control equipment. In the event of a spill, the spilled material would be neutralized and the munitions in the area would be decontaminated with decontamination solution. The munitions would then be removed before the final cleanup of spill residues. In the event of a fire, which involves explosives at the MHA, personnel would be evacuated from the MHA, and the fire would be allowed to burn out.

The following are examples of waste streams, which may be stored in any of CAMDS storage facilities:

Agent (GB, VX, GA, L, and Mustard)	Cyclone Residue
DPE Suits	Contaminated Soil
Munitions	Non-Agent Related Waste
Spent Decontamination Solution	Miscellaneous Solid Waste
Scrubber Brine	Metal Scrap
Salts	Laboratory/Monitoring Waste
Ash	Demister Packing/Saddles
HEPA Filters, Prefilters, and Charcoal Filters	Miscellaneous Liquid Waste

These and other waste streams requiring storage at CAMDS are likely to contain various combinations of the following waste constituents and associated waste numbers:

D001 (Ignitability)	D034 (Hexachloroethane)
D002 (Corrosivity)	D035 (Methyl Ethyl Ketone)
D003 (Reactivity)	D036 (Nitrobenzene)
D004 (Arsenic)	D037 (Pentachlorophenol)
D005 (Barium)	D039 (Tetrachloroethylene)
D006 (Cadmium)	D040 (Trichloroethylene)
D007 (Chromium)	D043 (Vinyl Chloride)
D008 (Lead)	F001 (Spent Solvent Listings)
D009 (Mercury)	F002 (Spent Solvent Listings)
D010 (Selenium)	F003 (Spent Solvent Listings)
D011 (Silver)	F005 (Spent Solvent Listings)
D018 (Benzene)	U037 (Chlorobenzene)
D019 (Carbon Tetrachloride)	U044 (Chloroform)
D021 (Chlorobenzene)	U127 (Hexachlorobenzene)
D022 (Chloroform)	U131 (Hexachloroethane)
D027 (1,4-Dichlorobenzene)	U165 (Naphthalene)
D028 (1,2-Dichloroethane)	U210 (Tetrachloroethylene)
D029 (1,1-Dichloroethylene)	F999 (Residue from Demilitarization
D030 (2,4-Dinitrotoluene)	of Chemical Agents)
D032 (Hexachlorobenzene)	P095 (Phosgene)
	P999 (Chemical Warfare Agent)

If other waste streams occur that are not covered by any of the previously listed waste stream examples, they will be evaluated for storage suitability. If found acceptable and after a modification of this permit is approved by the Division of Solid and Hazardous Waste, these wastes will then be placed in approved storage areas. Hazardous waste compatibility will be based on CAMDS knowledge of standard waste streams and Material Safety Data Sheets (MSDS) for any substance that becomes hazardous waste. Generation of other hazardous waste that is not characterized will be analyzed to determine compatibility. Analysis of hazardous waste will include all methods necessary to determine all hazardous waste codes applicable to the waste.

Munitions will only be stored in the ETF, MHA, SEG/ECC No. 1 UPA, which have been designed for this purpose. Two different munition types will not normally be stored in the same area unless specific testing is required. Two different agent types will not be placed in the same storage area unless that area is monitored for both agent types. Munitions may also be stored in the MDM/CG, MDF Toxic UPA, BIF Drain Bay, MDF/BIF Airlock, or the MDF/BIF Loading Area, if operations are stopped during processing.

12.4.3 Use and Management of Containers

12.4.3.1 Description of Containers

Hazardous waste generated at CAMDS, and the hazardous wastes received from the DCD may be stored at the ETF, MHA, MPF Area, RSA, VSA, GPF, CTF, SEG/ECC No. 1 UPA, MTF Building, MDM/CG, MDF Toxic UPA, BIF Drain Bay, MDF/BIF Airlock, MDF/BIF Loading Area, and the TMF in compatible containers. Hazardous waste munitions with a listed code of P999 will be placed in specially designed and sealed

containers. Reactive hazardous waste will be stored only in the ETF, MHA, and SEG/ECC No. 1 UPA.

The following containers or equivalents serve as overpacks and secondary containment containers for containers with free liquids:

- M23 Land Mine Can. 18-inch high x 16-inch diameter steel drum with ringed, gasketed lid. Each can is designed to contain three M23 VX land mines with fuses and activators in separate compartments. The cans have an approximate displacement of 2.09 cubic feet (or 16 gallons).

- On-Site Containers (ONCs). A munition overpack designed to provide containment for bulk containers, rockets, land mines, artillery and mortar shells, bombs and spray tanks. The munitions and bulk containers were originally manufactured to safely contain and store their respective chemical agent and/or energetic components. ONCs are designed with seals that are impervious to agent to provide vapor-tight containment.

- Single Pallet Only Rocket Transporter (SPORT). Steel box with gasketed lid, overall size approximately 100 in. long, 40 in. wide, 38 in. high

- Single Round Container (SRC) for M-55 rocket. Steel cylinder with gasketed end cap or sections, overall size is approximately 6 in. diameter, 85 in. long

- Propellant Charge Can, for projectiles, cartridges, and warheads. Steel cylinder with gasketed end cap, overall size varies up to approximately 10 in. diameter and 70 in. long

- Salvage drum, steel drum with removable head, 49 CFR 173.3, as an overpack for non-leaking container up through 55 gallons

- Salvage drum, polyethylene drum with removable head, DOT-E 9618, as an overpack for a non-leaking container up through 55 gallons

- Polyethylene secondary containment catch container, for containing up to two 55-gallon non-leaking drums, overall size is approximately 60 in. long, 34 in. wide, 47 in. high, containment capacity of 135 gallons

- Polyethylene secondary containment catch container, for containing up to four 55-gallon non-leaking drums, overall size is approximately 56 in., by 56 in., 10 in. high, containment capacity is approximately 84 gallons.

- Steel drip pans, for containing a ton container, overall size is ten ft. by five ft., six in. high, containment capacity is approximately 187 gallons

- Collapse-a-tainer® - constructed of XR5 ethylene co-polymer: collapsible secondary containment system for containing up to sixteen 55-gallon non-leaking drums (four pallets with four drums each) or equivalent. Overall size is nine feet by nine feet 8 inches high, containment capacity is approximately 404 gallons.

- ENPAC Corporation flexible secondary containment products made of vinyl-coated polyester for containing various containers including ton containers. Sizes include 10' L x 10' W x 1' H (748 gallons) and 18' L x 8' W x 8" H (718 gallons), but other sizes could be used.

DOT approved containers will be used to store hazardous waste in site storage areas. The following examples are provided of such containers that may be used for storing hazardous waste containing free liquids, when placed in secondary containment listed above:

- 5, 6 ½, and 13-gallon polyethylene carboys with gasketed cap
- 1, 3, 5, 8, 15, 30 and 55-gallon polyethylene drums with or without removable heads
- 8, 30, and 55-gallon steel drums with or without removable heads
- 170-gallon ton containers.
- Other containers that are UDOT approved.

CAMDS may also store containers of solid hazardous waste (no free liquid) as determined by the paint filter test. The following containers of hazardous waste will be used to store hazardous wastes with no free liquids:

- 8, 30, and 55-gallon steel drums with removable heads
- 1, 3, 5, 8, 15, 30 and 55-gallon polyethylene drums with removable heads
- Salvage drum, steel drum with removable heads
- Salvage drum, polyethylene drum with removable heads
- 170-gallon ton containers
- Other containers that are UDOT approved

The following non-DOT containers may also be used for the storage of hazardous wastes with no free liquids in CAMDS storage areas:

- SPORT, Steel box with gasketed lid, overall size 100 in. long, 40 in. wide, 38 in high.
- Lined wood or fiberboard crates and boxes
- Plastic bags, polyethylene.

NOTE: Plastic bag containers may be placed in wooden boxes or metal wire baskets, and stacked. The plastic bags and their contents are being stored prior to treatment in CAMDS incinerators or other thermal decontamination unit(s).

Some exceptions that exist; such as demister packing that is being manifested off-site will be contained in plastic bags meeting DOT 44P at the time of manifesting. Plastic bags will not be reused.

Each container of hazardous waste will be labeled in accordance with EPA regulations.

Liners may be reused after being cleaned, inspected, and verified as having no leaks.

12.4.3.2 Container Management Practices

Containers used to store hazardous waste will be managed in such a way as to not cause damage to the container and release the contents. Containers will be closed except when adding or removing hazardous waste. The facility has controlled access. The doors are locked and only authorized personnel are allowed access.

Containers will be placed on pallets (if skids are not built in) to elevate the containers from any liquids that may be present on the storage area base. Depending on the pallet size, up to four 55-gallon drums may be stored on a pallet. The special containers for M-55 rockets have built in forklift guides and skids. Combinations of the containers may also be stored. The maximum number of drums and total volume of hazardous waste stored in each area is specified in the detailed description for each storage area.

The following containers may be stacked two high:

- Salvage drum, steel
- Salvage drum, polyethylene
- 55-gallon drum

The following containers may be stacked four high:

- SPORT
- Wire baskets/wooden boxes (less than 48 in. in height each) containing plastic bags
- Ton containers -stacked up to four levels high (as in Area 10 igloos), using a pyramid-type (e.g., 6-5-4-3 bottom to top) arrangement elevated above the base and flexible secondary containment that meets the requirement for providing capacity to contain 10% of the volume of the ton containers or the volume of the largest container (170 gallons).

All containers are transported across the facility with a forklift on asphalt or concrete roads and pads. Sufficient floor space exists within the storage buildings for forklift or other maneuvering device to operate in the placement and stacking of containers.

When agent or explosives are being transported at the facility, an announcement of the route is made over the facility public address system.

Storage areas are in process buildings, which store non-hazardous materials as well as hazardous waste items. Non-hazardous waste munitions (i.e., munitions that are still usable stock) and other non-hazardous waste items being stored at these locations will not be entered into the facility RCRA "operating record". They may not be stored in the containers as listed above. Non-hazardous waste munitions are compatible with any hazardous waste munitions. Non-hazardous waste will be physically separated from any hazardous waste containers and clearly identified.

Aisle space of at least 24 inches will be maintained to provide unobstructed movement of personnel for inspecting, fire fighting, and decontaminating. Fire fighting equipment may enter the buildings through overhead doors. Hand held fire and decontamination equipment would be used between aisles of hazardous waste containers.

12.4.4 Inspections

There are two types of inspections performed. The first inspection is of the storage area itself and the second is of the containers. The storage area is inspected for warning signs, condition of the storage area and the containment system. The containers are inspected for leaks, deterioration, and general condition. Inspections of container storage areas occur weekly, while hazardous waste is being stored, during which time, any container found to be deteriorating, or corroding is overpacked and any deficiencies in the storage area or containers are noted in the inspection record and repairs or corrections are initiated within 24 hours. If a deficiency in the storage area secondary containment system is identified and corrective action is not initiated within the 24-hour timeframe, any hazardous waste stored in this area must be removed or an alternative means of secondary containment must be provided. Weekly storage area inspections are detailed in Attachment 5.

12.4.5 Secondary Containment System Design and Operation

All containers with free liquids will be provided with secondary containment. The design of the RSA, VSA, GPF, CTF, MTF, ETF ventilated area, MPF, SEG/ECC No. 1, MDM/CG, MDF Toxic UPA, BIF Drain Bay, MDF/BIF Airlock, and TMF provides secondary containment up to a capacity limit. Secondary containment of hazardous waste liquids above this capacity will be provided by containers as listed in 12.4.3.1 above. Secondary containment in the MHA, MDF/BIF loading area, and the non-ventilated permitted portions of the ETF will be provided by containers as listed in 12.4.3.1 above. The capacity of each container providing secondary containment shall, at a minimum, equal that of the largest primary container therein. The containers listed in 12.4.3.1 above provide the secondary containment for hazardous waste containers containing free liquids.

12.4.6 Containment

All containers with free liquids are provided with secondary containment. General secondary containment for the RSA, VSA, GPF, CTF, MTF, ETF ventilated area, MPF, SEG/ECC No. 1, MDM/CG, MDF Toxic UPA, BIF Drain Bay, MDF/BIF Airlock, and TMF is provided by secondary containment systems integral to the floors of these facilities. The floors in these facilities are impervious to liquids and any hazardous waste stored therein. Some also have waste collection systems. In addition to the structural

containment, liquid wastes may also be stored on drip pans/flexible secondary containment or within overpacks.

Secondary containment for the MHA, MDF/BIF loading area, and ETF non-ventilated area will always be provided by the use of overpacks, drip pans or flexible secondary containment. The following sections (paragraphs 12.4.7, 12.4.8, 12.4.9, and 12.4.10) address these ways to provide secondary containment in these areas.

12.4.7 Requirement for the Base of Liner to Contain Liquids

The containment system for wastes with free liquid is provided by approved secondary containment containers designed specifically for this purpose. The secondary containers are required to be free of deterioration that would cause leakage in the event the container they hold should leak. The secondary containment also protects the primary container from run-on. The secondary containers are designed to meet Army specifications for having sufficient structural integrity to contain a leak and the primary container(s). They are constructed of compatible material with the wastes stored.

12.4.8 Containment System Drainage

Overpack and shipping containers completely envelop the container, which holds free liquids, thus any leakage will accumulate in the secondary containment container. Secondary containment (palletized secondary containment system) is also used. Liquid from a leaking container held on the grating of a catch pan used for 55-gallon drums, as described above, would drain down and away from the containers into a built-in holding vessel.

12.4.9 Containment System Capacity

Secondary containment containers (overpacks) completely enclose individual containers of free liquid and thus have sufficient capacity to retain any leaks or spills. Secondary catch containers can support multiple containers and provide secondary containment capacity for 100 percent of the largest container in the event of a leak.

12.4.10 Control of Run-on

Overpacks and shipping containers prevent run-on from contacting the containers of liquids. Secondary catch containers elevate the containers of free liquid and prevent run-on from reaching them.

12.4.11 Removal of Liquids from Containment System

Leaks into secondary containment are identified during the weekly inspection or during routine operations. The liquid in the secondary containment containers will be transferred immediately to another acceptable container if a container holding free liquid spills or leaks. The container will be labeled and kept in the container storage area. Any residual liquid in the secondary containment container will be removed immediately with absorbent material. The waste will not be sampled because the content has already been characterized.

Waste liquids collected in sumps will be pumped to an appropriate storage tank at CAMDS or other approved storage container. A list of these tanks is found in Attachment 13, Table 13-1. The sumps have leak detectors that alarm or show liquid levels. All liquid in the sumps is removed within twenty-four hours. Secondary containment containers will be reused after the container has been inspected to ensure it has been adequately cleaned and is free of leaks.

12.4.12 General Requirements for Ignitable, Reactive, or Incompatible Wastes

Munitions designated as hazardous waste may only be stored in the ETF, MHA, and SEG/ECC No. 1 UPA. Signs will be posted in conspicuous locations per Army safety regulations, and facility operators will take precautions to prevent accidental reaction of the wastes. Reactive (D003) wastes may be stored in any of the storage areas at the CAMDS site.

All storage facilities are secured and no smoking signs are posted. No flame, heat producing devices or smoking is permitted in or near areas when explosives are present. The quantity of explosives and the number of personnel in the ETF, MHA, and SEG/ECC1 Unpack area is limited when explosives are present. No incompatible wastes will be stored in any of the storage locations. Hazardous waste compatibility will be based on CAMDS knowledge of standard waste streams and MSDSs for any substance that becomes hazardous waste. Generation of other hazardous waste that is not characterized will be analyzed to determine compatibility.

12.4.13 Special Requirements for Incompatible Wastes

All wastes are placed in new containers or containers that have been properly washed. Wastes that are not compatible to each other are not placed in the same drum. Containers holding waste that is incompatible with other waste in the storage area are separated. A barrier or overpack will be placed around the container(s) holding the incompatible waste to stop the waste from migration between the containers stored at this storage area.

12.5 SPECIFIC HAZARDOUS WASTE STORAGE AREA INFORMATION

12.5.1 Munitions Holding Area Igloo and Revetment Area

The MHA storage area is located behind a 15-foot high earthen and steel barricade in the northeast side of the CAMDS site. It consists of an enclosed, ventilated igloo and external concrete pad located behind the barricade. The barricade provides protection to the site buildings in the event of an explosion of munitions stored in this area. The igloo is designed for the Army's secure storage of chemical agent filled munitions and bulk containers. The external asphalt and concrete pad measures approximately 50 by 60 feet in area. Ammunition container structures (conexs) will be placed on the cement apron for the purpose of storage of hazardous waste energetics. More than one conex will be used to insure that only compatible wastes are stored in each conex. Each conex provides protection precipitation and run-on. Energetic hazardous waste will be stored in containers placed inside of each conex. Army safety/surety regulations for storage of energetics are met by this storage method. There will be no free liquids or non-energetic hazardous waste stored in any conex.

The MHA may also be used to store non-hazardous waste agents and explosives that may be used in developing of new demilitarization process technologies at this facility. The non-hazardous waste agent/munitions stored in the MHA will not be entered into the facility RCRA "operating record", and they may not be in containers as listed above. The standard Army color-coded bands will identify these munitions. The containers of hazardous waste will be clearly labeled. The igloo structure provides protection from precipitation and run-on.

Combinations of the containers may also be stored in the igloo. Aisle space will be maintained to provide for the unobstructed movement of personnel for inspecting, fire fighting and decontamination of each container. Because of the limited size of the igloo storage area (approximately 25-ft. by 13 ft.) and only one entrance, only hand held fire fighting and decontamination equipment would be entering the igloo.

Secondary containment for containers of hazardous waste with free liquids will be provided by placing them in overpacks, drip pans, or other containment system listed in 12.4.3.1. The calculation for the drip pan secondary containment volume has been discussed in a previous section. The MHA is expected to store up to a total of 4,040 gallons of liquid/solid hazardous waste.

12.5.2 Equipment Test Facility

The ETF building is located at the south end of the CAMDS site. It is constructed with a reinforced concrete floor, steel panel walls and roof. The building is heated and contains a fire sprinkler and fire deluge system. The ETF storage area includes the Unpack area (UPA) at the north end of the building and the Repack area with ventilated area at the south end of the building. The ETF will store hazardous waste containing free liquid. The ETF also houses explosives containerized solid hazardous waste, and waste piles.

The storage area consists of about 3000 square feet within the ETF building, of which 800 square feet is ventilated. The maximum hazardous waste liquid/solid storage capacity of the ETF is 40,260 gallons (732, 55-gallon drums) placed on pallets, which are stacked in rows with 24-inch wide aisles.

The containment system for containers of free liquid stored in the ETF is provided by the secondary containment containers designed specifically for this purpose as discussed in detail in the preceding text.

12.5.2.1 Secondary Containment System Design and Operation

The design of the ventilated area of the ETF provides secondary containment for liquids. The ventilated area has a curbed, sloped base with a trench that connects to a waste liquid pipeline. Liquid would flow through this piping to a sump located in the pit under the Explosive Containment Cubicle (ECC) No. 2. Secondary containment of the hazardous waste liquids placed in non-ventilated portions of the ETF will be provided by overpack containers.

12.5.2.2 Requirement for the Base or Liner to Contain Liquids

The base of the ETF ventilated storage area consists of a curbed, rectangular, reinforced concrete slab four-inches thick. The surface of the slab is coated with epoxy mastic. All floor surfaces are sloped and trenched to a lined collection sump structurally supported by 12-inches of concrete. All surface areas of the base of the ETF are free of cracks or gaps.

The concrete floor is coated with epoxy mastic to prevent waste migration into the concrete. The coating is a two-part polyamide cured, high-resin solids epoxy (Rowe Epoloid for concrete and steel or equivalent). The sump has an ethylene-chlorotrifluorethylene liner (ECTFE or Halar). The ETF building consists of a concrete base with a steel frame, metal skinned structure. The ventilated storage location is a curbed area within the ETF building, thus the base does not receive precipitation.

The base was designed with sloped, trenched floors to a collection sump below the ECC No. 2.

Design assessments of the ETF in November 1989 showed the floor and sump to have adequate structural integrity and containment capacity. The base is inspected weekly, while hazardous waste is being stored, for cracks, gaps, or deterioration, any deficiencies are noted, and repairs or corrections are initiated within 24 hours. If a deficiency in the storage area secondary containment system is identified and corrective action is not initiated within the 24-hour timeframe, any hazardous waste stored in this area must be removed or an alternative means of secondary containment must be provided.

12.5.2.3 Containment System Drainage

The floor and trenches of the ETF ventilated area have a minimum slope of 1/8 inch per ten feet. Any liquids from leaks or spills will drain from the floor into the collection sump located below ECC No. 2 and just north of the storage location.

12.5.2.4 Containment System Capacity

The area in the ventilated portion of the ETF available for storage of containers is approximately 800 square feet. Secondary containment provided by the in-floor collection sump (190 gallons) and concrete vault below ECC No. 2 provides a total containment volume of approximately 2,300 gallons. This figure is based on an eight-inch liquid depth in the concrete vault, which is the structural load limit for liquid above the collection sump.

12.5.2.5 Control of Run-on

Run-on into the ventilated area of the ETF is prevented by the curbed perimeter of the base. The entrances used to move containers in and out of this area are curbed and air locked to prevent any run-on.

12.5.2.6 Removal of Liquids from the Containment System

A pump with associated ancillary equipment has been installed to remove any accumulated liquids in the ETF ventilated area. The pump is constructed with a polypropylene body and polypropylene or PVDF wetted parts, Teflon diaphragms,

Teflon or polypropylene ball check valves, valve seats, and seat seals. The waste liquid piping is Teflon lined. These materials are compatible with and resistant to the stored liquids. Any replacement parts necessary for the pump and piping will be equivalent based on corrosion resistance and structural integrity as determined by the manufacturer. The ETF sump is inspected for the presence of liquid at least once every 24 hours. Any accumulated liquid is pumped immediately upon discovery to the tanks located within the TMF.

12.5.3 Metal Parts Furnace Area

The MPF storage area consists of an enclosed pad north of the MPF building and an area in the northwest corner of the MPF building. A personnel door separates the enclosed area from the building. Overpacks or secondary containment drip pans/flexible systems will be provided for any containers holding free liquid that are placed inside the MPF building. The base of the storage pad to the north provides secondary containment for containers of free liquid.

The processing area inside the MPF building will be managed as a 90-day accumulation area rather than a permitted storage location. Treated wastes will be moved from the MPF building within 90 days of their generation.

12.5.3.1 Secondary Containment System Design and Operation

The design of the MPF storage area provides secondary containment of liquids. Secondary containment of the hazardous waste liquids placed in the MPF storage area may also be provided by overpack containers.

The MPF storage area is constructed with a reinforced concrete floor, steel panel walls and roof.

12.5.3.2 Requirement for the Base or Liner to Contain Liquids

The base of the MPF storage area consists of a covered, nearly square reinforced concrete slab with a curb along the perimeter. A ramp is provided for access to the west side of the building. The center of the base contains a collection sump. All surface areas of the base of the MPF storage area are free of cracks or gaps. This storage area consists of a curbed concrete base with a steel frame, metal skinned structure. Thus the base does not receive precipitation.

The base was designed with sloped floors to a collection sump. The sloped floor and sump are constructed from a continuous pour of concrete on a reinforced concrete foundation. The base is inspected weekly, while hazardous waste is being stored, for cracks, gaps, or deterioration, any deficiencies are recorded on the inspection form and repairs or corrections are initiated within 24 hours. If a deficiency in the storage area secondary containment system is identified and corrective action is not initiated within the 24-hour timeframe, any hazardous waste stored in this area must be removed or an alternative means of secondary containment must be provided.

12.5.3.3 Containment System Drainage

The floor of the MPF storage area has a slope of 3/8 inch per foot and the ramps have a slope of ½ inch per foot. Any liquids from leaks or spills will drain into the collection sump at the center of the floor.

12.5.3.4 Containment System Capacity

The surface area of the floor in the MPF storage area is approximately 1,400 square feet. The total capacity of the secondary containment provided by the in-floor collection sump (60 gallons), and sloped, curbed floor (4,630 gallons) is about 4690 gallons.

Subtracting the approximate volume (160 gallons) held by items on the base, when the area is full, yields a capacity of 4,530 gallons. Taking into account the requirement for the secondary containment system to have a capacity of 10 percent of the liquids stored in containers, the maximum allowable storage of liquid is 45,300 gallons (823, 55-gallon drums).

12.5.3.5 Control of Run-on

Run-on into the MPF storage building is prevented by the curbed perimeter of the base. The ramp to the entrance used to move containers in and out of the building is sloped to prevent any run-on.

12.5.3.6 Removal of Liquids from the Containment System

The sump is inspected at least once every 24 hours. Any accumulated liquid will be collected with a portable sump pump immediately upon discovery and transferred to tanks in the TMF or to containers.

12.5.4 Residual Storage Area

12.5.4.1 Secondary Containment System Design and Operation

The design of the RSA provides secondary containment of liquids. Secondary containment of the hazardous waste liquids placed in the RSA may also be provided by overpack containers, although overpack containers are not included in calculations for secondary containment. The RSA building is constructed with a reinforced concrete floor, steel panel walls, and roof. The building is heated and contains a fire sprinkler and fire deluge system. About 400 square feet of area is available for hazardous waste storage).

12.5.4.2 Requirement for the Base or Liner to Contain Liquids

The base of the RSA consists of a sloped and trenched rectangular reinforced concrete slab. The surface of the slab is coated with epoxy mastic. A trench runs through the base to a collection sump. All surface areas of the base of the RSA are free of cracks or gaps.

The concrete floor and trench are coated with an epoxy mastic to prevent waste migration into the concrete. The coating is a two-part polyamide cured, high-resin solids epoxy. The sump has an ethylene-chlorotrifluorethylene liner (ECTFE or Halar). This storage

area building consists of a curbed concrete base with a steel frame, metal skinned structure, and thus the base does not receive precipitation.

The base was designed with sloped floors and a sloped trench with a collection sump. The original floors in the RSA were eight inches thick reinforced concrete; a concrete overlay up to six inches thick was added to accommodate the trench and adequate drainage to the sump. These surfaces were then coated with epoxy mastic.

The base is inspected weekly, while hazardous waste is being stored, for cracks, gaps, or deterioration and checked daily for any accumulated liquid. Any deficiencies are noted on the inspection forms and repairs or corrections are initiated within 24 hours. Any accumulated liquid is removed from the secondary containment system immediately. If a deficiency in the storage area secondary containment system is identified and corrective action is not initiated within the 24-hour timeframe, any hazardous waste stored in this area must be removed or an alternative means of secondary containment must be provided.

12.5.4.3 Containment System Drainage

The floor of the RSA has sufficient slope to drain into the collection sump directly (West End) or drain to the trench. The trench is sloped at a minimum of 1/8 inch per 10 feet to drain liquids from the East End of the building into the sump. Any liquids from leaks or spills will ultimately drain into the collection sump at the end of the trench due to the sloped design of both the floor and trench.

12.5.4.4 Containment System Capacity

The containment provided by the in floor collection sump (286 gallons), and four inch wide trench (about 5 gallons) combine for a total secondary containment capacity of approximately 291 gallons.

Since the stored containers do not occupy any of this space and taking into account the requirement for the secondary containment system to have a capacity of ten percent of the liquids stored in containers, the maximum storage of liquid is 2,910 gallons. Solid hazardous waste may also be stored in the RSA.

12.5.4.5 Control of Run-on

Run-on into the RSA is prevented by the curbed perimeter of the base. The entrance used to move containers in and out of the building is sloped to prevent any run-on.

12.5.4.6 Removal of Liquids from the Containment System

A pump with associated ancillary equipment has been installed to remove any accumulated liquids in the RSA. The pump is constructed with a polypropylene body and polypropylene or PVDF wetted parts, Teflon diaphragms, Teflon or polypropylene ball check valves, valve seats, and seat seals. The waste liquid piping is Teflon lined. These materials are compatible and resistant to the stored liquids. Any replacement parts necessary for the pump and piping will be equivalent or suitably corrosion resistant.

The sump is inspected at least once every 24 hours. Deficiencies are noted on the inspection form and corrected within 24 hours. Any accumulated liquid is pumped immediately upon discovery to the tanks through CAMDS waste liquid piping to the TMF.

12.5.5 Segregator/Explosive Containment Cubicle No. 1

12.5.5.1 Secondary Containment System Design and Operation

The design of the SEG/ECC No.1 provides for the secondary containment of liquids. Secondary containment of the hazardous waste liquids placed in the SEG/ECC No.1 may also be provided by drip pans/flexible systems, overpack containers, etc. The SEG/ECC No.1 building is constructed with a reinforced concrete floor, steel panel walls, and roof. Approximately 400 square feet of area is available for hazardous waste storage.

The maximum hazardous waste liquid storage capacity of the SEG/ECC No.1 UPA is 96 each 55-gallon drums for a total of 5280 gallons. The required secondary containment for this capacity is 528 gallons.

12.5.5.2 Requirement for the Base or Liner to Contain Liquids

The base of the SEG/ECC No.1 consists of a reinforced concrete slab with a 5 ¾-inch curb wall around the perimeter. The ECC No.1 area contains a large pit and a sump constructed of reinforced concrete. All concrete surfaces are covered with an epoxy coating to prevent waste migration into the concrete. All surface areas of the base of the SEC/ECC No. 1 are free of cracks or gaps. The base is inspected weekly, while hazardous waste is being stored, for cracks, gaps, or deterioration. Any deficiencies are noted on inspection forms and repairs or corrections are initiated within 24 hours. If a deficiency in the storage area secondary containment system is identified and corrective action is not initiated within the 24-hour timeframe, any hazardous waste stored in this area must be removed or an alternative means of secondary containment must be provided. The SEG/ECC No.1's curbed concrete base and metal skinned structure prevent precipitation onto the base. The facility, as described adequately, serves as secondary containment for hazardous waste liquids.

12.5.5.3 Containment System Drainage

The floor of the SEG/ECC No. 1 storage area is sloped at a ¼-inch per foot grade toward the collection sump in the ECC No. 1 pit. Any liquids from leaks or spills will drain from the floor into the collection sump.

12.5.5.4 Containment System Capacity

The secondary containment system for the SEG/ECC No.1 consists of a combination of the collection sump, the sloped, curbed floor area (excluding pallet space), and the ECC No.1 pit. In calculating the containment system's capacity, a conservative estimate was made by calculating only the volume of the ECC No.1 pit area. This pit area is an “H” shaped pit approximately 25 feet long and 10 feet wide. There are step-downs along the longitudinal axis that take up some of the volume. The pit is approximately 8 feet deep, with a base sloped toward a small sump. The volume of this pit is calculated to be

approximately 1727 cubic feet, which equates to 12,917 gallons. This volume is more than adequate to contain the entire capacity of hazardous waste liquids that may be stored in this facility (5,280 gallons).

12.5.5.5 Control of Run-on

Run-on into the SEG/ECC No.1 is prevented by the curbed perimeter of the base. The entrance used to move containers in and out of the building is sloped to prevent any run-on.

12.5.5.6 Removal of Liquids from the Containment System

An air driven pump with associated ancillary equipment is available to remove any accumulated liquids in the SEG/ECC No.1 (primarily those accumulating in the sump).

The collection sump will be inspected at least once every 24 hours. Any accumulated liquid is pumped immediately upon discovery to tanks in the TMF, BDA, or into approved containers.

12.5.6 Material Treatment Facility (MTF) Building

12.5.6.1 Secondary Containment System Design and Operation

The design of the MTF building provides secondary containment of liquids. Secondary containment of the hazardous waste liquids placed in the MTF building may also be provided by overpack containers.

The MTF building is constructed with a reinforced concrete floor, steel panel walls, and roof. The building is heated and contains a fire sprinkler and fire deluge system.

12.5.6.2 Requirement for the Base or Liner to Contain Liquids

The base of the MTF building consists of a rectangular reinforced concrete slab with a curb along the perimeter. The surface of the slab is coated with epoxy mastic. A trench runs through the center of the base to a collection sump. All surface areas of the base of the MTF building are free of cracks or gaps.

The concrete floor, trench, and sump walls are coated with epoxy mastic to prevent waste migration into the concrete. The coating is a two-part polyamide cured, high resin solids epoxy. This storage area building consists of a curbed concrete base with a steel frame, metal skinned structure, and thus the base does not receive precipitation.

The base was designed with sloped floors and a sloped trench with a collection sump. The sloped floor, trench, and sump were constructed from a continuous pour of concrete on a reinforced concrete foundation. These surfaces were then coated with epoxy mastic.

As a result of an evaluation of the MTF building in April 1989 the floor, trench, and sump were recoated with epoxy mastic. The base is inspected weekly, while hazardous waste is being stored, for cracks, gaps, or deterioration. Any deficiencies are noted on the inspection form and repairs or corrections are initiated within 24 hours. If a

deficiency in the storage area secondary containment system is identified and corrective action is not initiated within the 24-hour timeframe, any hazardous waste stored in this area must be removed or an alternative means of secondary containment must be provided.

12.5.6.3 Containment System Drainage

The floor of the MTF storage area has a slope of ¼-inch per foot and an eight-inch wide sloped trench with an overall elevation drop of eight inches that runs through the center of the base. Any liquids from leaks or spills will drain into the trench and then drain into the collection sump at the end of the trench due to the sloped design.

12.5.6.4 Containment System Capacity

The surface of the MTF storage area is approximately 500 square feet. The total capacity of the secondary containment provided by the in-floor collection sump (30 gallons), 28-foot long, eight-inch wide trench (100 gallons), and sloped floor (60 gallons) is 190 gallons. Subtracting the approximate volume (35 gallons) held by items on the base, when the area is full, yields a capacity of 150 gallons. Taking into account the requirement for the secondary containment system to have a capacity of ten percent of the liquids stored in containers, the maximum storage of liquids without individual secondary containment is 1,500 gallons.

Additional containers holding free liquid will be stored in overpacks or specialized secondary containment vessels. A maximum of 4,400 gallons (80, 55-gallon drums based on five rows two pallets long, with adequate aisle space and stacked two high) of liquid hazardous waste (including the 1,500 gallon capacity of the base) may be stored in the MTF building.

12.5.6.5 Control of Run-on

Run-on into the MTF storage building is prevented by the curbed perimeter of the base. The airlock entrance used to move containers in and out of the building is sloped to prevent any run-on.

12.5.6.6 Removal of Liquids from the Containment System

A pump with associated ancillary equipment has been installed to remove any accumulated liquids in the MTF building. If agent was transported with the ancillary equipment, the system will be flushed with decontamination solution prior to removal of the pumps and/or piping.

The sump is inspected at least once every 24 hours. Any accumulated liquid is immediately pumped to the tanks in the TMF or containers.

12.5.7 Toxic Maintenance Facility

12.5.7.1 Secondary Containment System Design and Operation

The design of the TMF provides secondary containment of liquids. Secondary containment of the hazardous waste liquids placed in the TMF may also be provided by overpack containers. The TMF building is constructed with a reinforced concrete floor, steel panel walls and roof. The building is heated.

12.5.7.2 Requirement for the Base or Liner to Contain Liquids

The base of the TMF consists of a nearly square reinforced concrete slab eight inches thick with a 5 ¾-inch curb along the perimeter. The surface of the slab is coated with epoxy mastic. All floor surfaces are sloped to a collection sump. All surface areas of the base of the TMF are free of cracks or gaps.

The concrete floor is coated with epoxy mastic to prevent waste migration into the concrete. The coating is a two-part polyamide cured, high-resin solids epoxy (Rowe Epoloid for concrete and steel). The sump has an ethylene-chlorotrifluorethylene liner (ECTFE or Halar). The TMF building consists of a curbed concrete base with a steel frame, metal-skinned structure, thus the base does not receive precipitation.

The base was designed with sloped floors to a collection sump. The sloped floor and sump foundation was constructed from a continuous pour of concrete on a reinforced concrete foundation. These surfaces were then coated with epoxy mastic. The sump liner was constructed of ECTFE.

Design assessment of the TMF in September 1989 showed the floor and sump to have adequate structural integrity. The base is inspected weekly, while hazardous waste is being stored, for cracks, gaps, or deterioration. Any deficiencies are noted on the inspection form and repairs or corrections are initiated within 24 hours. If a deficiency in the storage area secondary containment system is identified and corrective action is not initiated within the 24-hour timeframe, any hazardous waste stored in this area must be removed or an alternative means of secondary containment must be provided.

12.5.7.3 Containment System Drainage

The floor of the TMF storage area has a minimum slope of 1/8-inch per foot. Any liquids from leaks or spills will drain from the floor into the collection sump located such that the direction of the flow is away from all four walls (near the center of the base).

12.5.7.4 Containment System Capacity

The area in the TMF available for storage of containers is approximately 350 square feet. Secondary containment provided by the in-floor collection sump (640 gallons) and sloped floor with a curb 5 ¾-inches high, which conservatively provides an additional containment volume of about 1,270 gallons, combines for a total capacity of 1,900 gallons.

Taking into account the approximate volume held by items on the base (about 100 gallons), the overall containment capacity is 1,800 gallons (see attached calculations). The TMF houses two 1,600-gallon waste liquid storage tanks with the same secondary containment system used as that for the storage containers. The containment system was designed to accommodate over 100 percent of the volume of one of these tanks.

Containers of solid hazardous waste may also be stored in the TMF, which would limit the capacity to store containers holding liquid.

12.5.7.5 Control of Run-on

Run-on into the TMF is prevented by the curbed perimeter of the base. The entrance used to move containers in and out of the building is sloped to prevent any run-on.

12.5.7.6 Removal of Liquids from the Containment System

A pump with associated ancillary equipment has been installed to remove any accumulated liquids in the TMF.

Like the sumps in the RSA and MTF, the TMF sump is inspected at least once every 24 hours. Any accumulated liquid will be pumped to the tanks located within the TMF or other acceptable containers. Liquid remains in the containment area no longer than 24 hours and is removed in a timely manner.

12.5.8 Ventilated Storage Area

12.5.8.1 Secondary Containment System Design and Operation

The VSA is located immediately south of the ATF building in the southeast corner of the CAMDS site. The VSA building is constructed with a reinforced concrete floor, steel panel walls, and roof. It will be used for storage of process wastes generated from CAMDS agent operations, which require storage in a ventilated area. Waste streams to be stored include contaminated DPE, spent carbon filter media, laboratory and monitoring wastes, and other solid and liquid wastes. The building is maintained continuously at negative pressure and ventilated through the site carbon filtration system. The building is divided into a containment area; an airlock; and doffing, shower, and observation/monitoring areas. Approximately 1,231 square feet of area are available for hazardous waste storage in the containment area. Secondary containment for the storage area is provided by the curbed base of the containment area section of the VSA and an in-the-floor sump, Sump 22A. (See the drawings in Attachment 11.)

The base of the VSA containment area consists of a sealed concrete floor and curbing around the perimeter. The curbing is at least 6 in. in height above the floor level and the base is completely enclosed with walls and ceiling. A floor sump having a cross section of 2 ft. by 2 ft. and a depth of 3 1/8 ft. is located north of the center of the floor. Secondary containment capacity is determined by the following calculations:

Secondary Containment of Containment Area (Gross volume):

$$\text{Floor and Curb} = \frac{1231\ \text{ft}^2 \times 0.5\ \text{ft}}{0.1337\ \text{ft}^3/\text{gal}} = 4{,}603.6\ \text{gal}$$

$$\text{Sump} = \frac{2\ \text{ft} \times 2\ \text{ft} \times 3.125\ \text{ft (depth)}}{0.1337\ \text{ft}^3/\text{gal}} = 93.5\ \text{gallons}$$

Total = 4697 gallons

Containment volume displaced per pallet:

$$\frac{48\ in^2 \times 3\ in}{231\ in^3/gal}\ (0.20) = 5.98\ gal/pallet\ (80\%\ void\ space)$$

Possible waste pile displacement:

$$\frac{5\ ft \times 4\ ft \times 0.5\ ft\ (depth)}{0.1337\ ft^3/gal} = 74.8\ gal$$

Total displacement:

(5.98 gal/pallet x 29 pallets on floor) + 74.8 gal
= 248 gallons displaced

Total Secondary Containment Capacity:

4697 gal — 248 gal = 4,449 gallons

Maximum allowable storage capacity provided by available secondary containment:

44,490 gallons

12.5.8.2 Requirement for the Base or Liner to Contain Liquids

The base of the VSA consists of a rectangular reinforced concrete slab with a 6-inch curb height along its perimeter. The floor of the containment section of the VSA contains a collection sump for controlling and collecting liquids in the event that a liquid leak from a container develops. The floor and sump foundation are constructed from a continuous pour of concrete on a reinforced concrete foundation. The surfaces are then covered with an epoxy coating to prevent waste migration into the concrete. All surface areas of the base of the VSA are free of cracks or gaps. The VSA's curbed concrete base and metal skinned structure prevent precipitation onto the base.

Installation assessment of the VSA will be conducted upon completion of construction to determine that the floor and sump have adequate structural integrity. The base will be inspected weekly, while hazardous waste is being stored, for cracks, gaps, or deterioration. Any deficiencies will be noted in the inspection form and repairs or corrections will be initiated within 24 hours of discovery. If a deficiency in the storage area secondary containment system is identified and corrective action is not initiated within the 24-hour timeframe, any hazardous waste stored in this area must be removed or an alternative means of secondary containment must be provided.

12.5.8.3 Containment System Drainage

The containers will be placed on wooden pallets to prevent contact with any liquids that may leak or could be spilled on the floor. Any liquids that are spilled or leak onto the floor will flow into the sump for collection and removal.

12.5.8.4 Containment System Capacity

Waste containers will only be stored in the containment section of the VSA. (See the VSA drawings in Attachment 12.) The storage arrangement will be as follows:

- Three rows of seven pallets, one row of six pallets (to allow for a possible waste pile in the southwest corner), and one row of two pallets. The maximum stacking height is two pallets high.

- The maximum number of 55-gallon drums per pallet is four. The maximum number of pallets in the VSA is 58. Based on these limits, the maximum volume of containerized waste to be stored in the VSA is 232 each 55-gallon drum equivalents (12,760 gallons).

- All rows will have at least 24 inches of aisle space for inspections and container management.

- None of the waste streams are incompatible and therefore none of the containers will be segregated.

The maximum volume of containerized waste that will be stored in the VSA using the layout described above is 12,760 gallons. Since the available secondary containment capacity for the VSA will be 4,449 gallons, the requirement for at least 10 percent of the total liquid storage capacity will be met.

12.5.8.5 Control of Run-on

The VSA is an enclosed, ventilated storage facility. The building will exclude precipitation. The floor elevation is higher than the surrounding ground, which will prevent run on.

12.5.8.6 Removal of Liquids from the Containment System

Any liquids that may accumulate in the sump or containment base will be removed within 24 hours upon discovery and pumped to a portable tank or other containers in good condition. The secondary containment area will be inspected on a weekly basis. The collection sump will be inspected at least once every 24 hours.

12.5.9 General Purpose Facility

12.5.9.1 Secondary Containment System Design and Operation

The GPF is located immediately north of the ATF building in the southeast corner of the CAMDS site. The GPF building is constructed with a reinforced concrete floor, steel panel walls, and roof. It is divided into two storage/processing areas, of which only the large room is to be used for hazardous waste storage, a loading area, an electrical and monitoring room, an observation room, and doffing and shower areas. Approximately 1,937 square feet of area are available for hazardous waste storage in the main storage/processing area. Secondary containment for this storage area is provided by the

curbed base and in-the-floor sump, Sump23A. (See the drawings in Attachment 11.)

The base of the GPF main storage/processing area consists of a sealed concrete floor and curbing around the perimeter. The curbing is at least four inches in height above the floor level, and the base is completely enclosed with walls and ceiling, except for an overhead door at the northwest corner. Sump 23A has a cross section of 5 feet by 5 feet and a depth of 49 inches; It is located near the southwest corner of the floor. Secondary containment capacity is determined by the calculations below.

Secondary Containment of Main Storage or Processing Area (Gross volume):

Floor and Curb $= \frac{1{,}937\ ft^2 \times 0.33\ ft}{0.1337 ft^3/gal} = 4{,}830$ gallons

Sump 23A $= \frac{60" \times 60" \times 49" \text{ (deep)}}{231\ in^3/gal} = 764$ gallons

Total = 5,594 gallons

Containment volume displaced per pallet:

$\frac{48\ in^2 \times 3\ in}{231 in^3/gal} (0.20) = 5.98$ gal/pallet (80% void space)

Total Displacement:

5.98 gal/pallet x 62 pallets on floor = 371 gallons displaced

Total Secondary Containment Capacity:

5,594 gal – 371 gal= 5,223 gallons

Maximum allowable storage capacity provided by available secondary containment (not considering displacement caused by equipment or other items on the floor other than pallets and containers):

52,230 gallons

12.5.9.2 Requirement for the Base or Liner to Contain Liquids

The base of the GPF consists of a rectangular reinforced concrete slab with a 6-inch curb height along its perimeter. The floor of the main storage/processing section contains a collection sump for controlling and collecting liquids in the event that a liquid leak from a container develops. The floor and sump foundation are constructed from a continuous pour of concrete on a reinforced concrete foundation. The surfaces are then covered with an epoxy coating to prevent waste migration into the concrete. All surface areas of the base of the GPF are free of cracks or gaps. The GPF's curbed concrete base and metal skinned structure prevent precipitation onto the base

Installation assessment of the GPF will be conducted upon completion of construction to determine that the floor and sumps have adequate structural integrity. The base will be

inspected weekly, while hazardous waste is being stored, for cracks, gaps, or deterioration. Any deficiencies will be noted in the inspection form and repairs or corrections will be initiated within 24 hours of discovery. If deficiencies in the storage are secondary containment system is identified and corrective action is not initiated within the 24-hour timeframe, any hazardous waste stored in this area must be removed or an alternative means of secondary containment will be provided.

12.5.9.3 Containment System Drainage

The containers will be placed on wooden pallets to prevent contact with any liquids that may leak or could be spilled on the floor. Any liquids that are spilled or leak onto the floor will flow into the sump for collection and removal.

12.5.9.4 Containment System Capacity

The secondary containment system for the GPF storage area consists of a combination of the collection sump, curbed floor area, and drip pans/flexible systems.

Based on the requirement for a secondary containment system to have a capacity of, at minimum, 10 percent of the total volume of containerized liquids stored, the maximum storage of liquid without individual secondary containment is listed below. Additional containers holding free liquid will be stored on overpacks or specialized secondary containment containers.

The storage arrangement for the main storage or processing area will be as follows:

- Four rows of 11 pallets and two rows of nine pallets (equals 62 pallets). The maximum stacking height is two pallets high.
- The maximum number of 55-gallon drums per pallet is four. The maximum number of pallets in this area is 124. Based on these limits, the maximum volume of containerized waste to be stored in this area is 496 each 55-gallon drum equivalents (27,280 gallons).
- All rows will have at least 24 inches of aisle space for inspections and container management.
- None of the waste streams are incompatible and therefore none of the containers will be segregated.

The maximum volume of containerized waste that can be stored in this area using the layout described above is 27,280 gallons. Since the available secondary containment capacity for this area will be 5,223 gallons, the requirement for at least 10 percent of the total liquid storage capacity will be met.

12.5.9.5 Control of Run-on

The GPF is an enclosed, ventilated storage facility. The building will exclude precipitation.

12.5.9.6 Removal of Liquids from the Containment System

Any liquids that may accumulate in the sumps or containment base will be removed within 24 hours upon discovery and pumped to a portable tank or other containers in good condition. The secondary containment area will be inspected on a weekly basis. The collection sumps will be inspected at least once every 24 hours.

12.5.10 Chemical Test Facility

12.5.10.1 Secondary Containment System Design and Operation

The CTF is located immediately south of the Brine Drying Area building and west of the TMF in the northwest corner of the CAMDS site. The building is constructed with a reinforced concrete floor, steel panel walls, and roof. The CTF storage area, which is built as a ventilated cubicle inside the building, includes the Treatment Room at the east end and the Process Room as the main area. An Airlock at the southeast corner allows movement of materials and wastes into and out of the Process Room. The building also includes a pre-entry room, a control room, observation areas above and around the Treatment and Process Rooms, and doffing and shower rooms. Approximately 1,922 square feet of area are available for hazardous waste storage (assuming no items on the base) in the Process Room. Secondary containment for this storage area is provided by the curbed base and a 15' x 23' x 14' 8" deep pit with a 4' diameter x 4' deep sump (1B) in it in the middle of the room. In the Treatment Room, there are approximately 417 square feet available for hazardous waste storage (assuming no items on the base). Secondary containment for this area is provided by the curbed base and a 3' x 2' 6" x 2' deep sump (1A) on one side of the room. The Airlock at the southeast corner contains about 392 square feet. Secondary containment is provided by the sloped, curbed floor area. (See the drawings in Attachment 11.)

The base of the CTF Process Room consists of a sealed concrete floor inside a ventilated area and curbing around the perimeter. The curbing is at least six inches in height above the floor level, and the base is completely enclosed with walls and ceiling. Secondary containment capacity is determined by the calculations below.

The base of the CTF Treatment Room consists of a sealed concrete floor and curbing around the perimeter. The curbing height is six inches above the floor level and the base is completely enclosed with walls and ceiling. Secondary containment capacity is determined by the calculations below.

The base of the CTF Airlock consists of a sealed concrete floor and curbing around the perimeter, except for the east side, which has a 12-foot wide overhead roll-up door to the outside, and the west side, which has an 11' 10" overhead roll-up door to the Process Room. The curbing height ranges from a minimum of six inches to a maximum of approximately ten inches above the floor level (the floor slopes from the outside door to the inside door), and the base is completely enclosed with walls, ceiling, and two overhead doors. Secondary containment capacity is determined by the calculations below.

Secondary Containment of Process Room (Gross volume):

Floor and Curb = $\frac{2{,}330.3\ ft^2 \times 0.5\ ft}{0.13368\ ft^3/gal}$ = 8,716 gallons

Pit = 15' x 23' x 14'8" deep = 37,851 gallons

Sump 1B = $\frac{48"\ diameter \times 48"\ deep}{231\ in^3/gal}$ = 376 gallons

Total = 46,943 gallons

Containment volume displaced per pallet:

$\frac{48\ in^2 \times 3\ in\ (0.20)}{231\ in^3/gal}$ = 5.98 gal/pallet (80% void space)

Total displacement:

5.98 gal/pallet x 66 pallets on floor = 395 gallons displaced

Total Secondary Containment Capacity:

46,943 gal — 395 gal = 46,548 gallons

Maximum allowable storage capacity provided by available secondary containment (not considering displacement caused by equipment or other items on the floor other than pallets and containers):

465,480 gallons

Secondary Containment of Treatment Room (Gross volume):

Floor and Curb = $\frac{424.4\ ft^2 \times 0.5\ ft}{0.13368\ ft^3/gal}$ = 1,587 gallons

Sump 1A = $\frac{36" \times 30" \times 24"\ deep}{231\ in^3/gal}$ = 112 gallons

Total = 1,699 gallons

Containment volume displaced per pallet:

$\frac{48\ in^2 \times 3\ in\ (0.20)}{231\ in^3/gal}$ = 5.98 gal/pallet (80% void space)

Total displacement:

5.98 gal/pallet x 17 pallets on floor = 102 gallons displaced

Total Secondary Containment Capacity:

1,699 gal — 102 gal = 1,597 gallons

Maximum allowable storage capacity provided by available secondary containment (not considering displacement caused by equipment or other items on the floor other than pallets and containers):

15,970 gallons

Secondary Containment of Airlock (Gross volume):

Floor and Curb = $\frac{392\ ft^2 \times 0.5\ ft}{0.13368\ ft^3/gal}$ = 1,466 gallons

Total = 1,466 gallons

Containment volume displaced per pallet:

$\frac{48\ in^2 \times 3\ in}{231\ in^3/gal}$ (0.20) = 5.98 gal/pallet (80% void space)

Total displacement:

5.98 gal/pallet x 16 pallets on floor = 96 gallons displaced

Total Secondary Containment Capacity:

1,466 gal — 96 gal = 1,370 gallons

Maximum allowable storage capacity provided by available secondary containment (not considering displacement caused by equipment or other items on the floor other than pallets and containers):

13,700 gallons

12.5.10.2 Requirement for the Base or Liner to Contain Liquids

The base of the CTF consists of a rectangular reinforced concrete slab with a 6-inch curb height along its perimeter. The floors of the Process Room and Treatment Room of the CTF contain collection sumps (inside a pit in the Process Room) for controlling and collecting liquids in the event that a liquid leak from a container develops. The floor and sump foundation are constructed from a continuous pour of concrete on a reinforced concrete foundation. The surfaces are then covered with an epoxy coating to prevent waste migration into the concrete. All surface areas of the base of the CTF are free of cracks or gaps. The CTF's curbed concrete base and metal skinned structure prevent precipitation onto the base.

Installation assessment of the CTF has been conducted and has determined that the floor and sumps have adequate structural integrity. The base will be inspected weekly, while hazardous waste is being stored, for cracks, gaps, or deterioration. Any deficiencies will be noted in the inspection form and repairs or corrections will be initiated within 24 hours of discovery. If a deficiency in the storage area secondary containment system is identified and corrective action is not initiated within the 24-hour timeframe, any

hazardous waste stored in this area must be removed or an alternative means of secondary containment must be provided.

12.5.10.3 Containment System Drainage

The containers will be placed on wooden pallets to prevent contact with any liquids that may leak or could be spilled on the floor. Any liquids that are spilled or leak onto the floor will flow into the sump for collection and removal.

12.5.10.4 Containment System Capacity

The secondary containment system for the CTF Process and Treatment areas consists of a combination of the collection sumps, curbed floor areas, and drip pans. The Airlock consists of the sloped, curbed floor area.

Based on the requirement for a secondary containment system to have a capacity of, at minimum, 10 percent of the total volume of containerized liquids stored, the maximum storage of liquid without individual secondary containment is listed below.

The storage arrangement for the Process Room area will be as follows:

- Rows containing a maximum of 66 pallets. The maximum stacking height is two pallets high.
- The maximum number of 55-gallon drums per pallet is four. The maximum number of pallets in this area is 132. Based on these limits, the maximum volume of containerized waste to be stored in this area is 528 each 55-gallon drum equivalents (29,040 gallons).
- All rows will have at least 24 inches of aisle space for inspections and container management.
- None of the waste streams are incompatible and therefore none of the containers will be segregated.

The maximum volume of containerized waste that can be stored in this area using the layout described above is 29,040 gallons. Since the available secondary containment capacity for this area will be 46,548 gallons, the requirement for at least 10 percent of the total liquid storage capacity will be met.

The storage arrangement for the Treatment Room area will be as follows:

- Rows containing a maximum of 17 pallets. The maximum stacking height is two pallets high.
- The maximum number of 55-gallon drums per pallet is four. The maximum number of pallets in this area is 34. Based on these limits, the maximum volume of containerized waste to be stored in this area is 136 each 55-gallon drum equivalents (7,480 gallons).

- All rows will have at least 24 inches of aisle space for inspections and container management.

- None of the waste streams are incompatible and therefore none of the containers will be segregated.

The maximum volume of containerized waste that will be stored in this area using the layout described above is 7,480 gallons. Since the available secondary containment capacity for this area will be 1,597 gallons, the requirement for at least 10 percent of the total liquid storage capacity will be met.

The storage arrangement for the Airlock area will be as follows:

- Rows containing a maximum of 16 pallets or possible waste or staging piles of metal and other items to be cut in preparation to be crated. (See "Management of Waste Piles" later in this Attachment.) The maximum stacking height is two pallets high.

- The maximum number of 55-gallon drums per pallet is four. The maximum number of pallets in this area is-32. Based on these limits, the maximum volume of containerized waste to be stored in this area is 128 each 55-gallon drum equivalents (7,040 gallons).

- All rows will have at least 24 inches of aisle space for inspections and container management.

- None of the waste streams are incompatible and therefore none of the containers will be segregated.

The maximum volume of containerized waste that can be stored in this area using the layout described above is 7,040 gallons. Since the available secondary containment capacity for this area will be 1,370 gallons, the requirement for at least 10 percent of the total liquid storage capacity will be met.

12.5.10.5 Control of Run-on

The CTF is an enclosed, ventilated storage facility. The building will exclude precipitation.

12.5.10.6 Removal of Liquids from the Containment System

Any liquids that may accumulate in the sumps or containment base will be removed within 24 hours upon discovery and pumped to a portable tank or other containers in good condition. The secondary containment area will be inspected on a weekly basis. The collection sumps will be inspected at least once every 24 hours.

12.5.11 Multipurpose Demilitarization Machine Processing Area/Conveyor Gallery (MDM/CG)

The MDM/CG is located in the East End of the Multipurpose Demilitarization Facility (MDF), which is located north of and contiguous to the Metal Parts Furnace (MPF) Building. The MDM Processing Area is a toxic enclosure in the Multipurpose

Demilitarization Facility (MDF) and contains the MDM, the Bulk Drain Station (BDS), agent tanks MDF-T3 and MDF-T4, and sump 9E, which is pumped to the TMF. The MDM/CG contains a series of conveyors designed to transport hazardous waste or agent containers of hazardous waste between the MDF Toxic Unpack Area and the Metal Parts Furnace. Because this area is a ventilated staging area for processing bulk containers or other munitions and waste (solid or liquid), the maximum number of bulk containers that will be stored in this area is ten-ton container equivalents (1,700 gallons, net liquid volume).

12.5.11.1 Secondary Containment Systems Design and Operation

The design of the MDM/CG provides adequate secondary containment for liquid wastes.

12.5.11.2 Requirement for the Base or Liner to Contain Liquids

The base of the MDM/CG consists of a concrete floor with a 6-inch curb along the perimeter. A collection sump is located along the north wall. All surface areas of the base of the MDM/CG are free of cracks or gaps. The concrete floor is coated with two layers of Epoloid sealant to prevent waste migration through the floor.

The base is inspected weekly, while hazardous waste is being stored, for cracks, gaps, or deterioration.

12.5.11.3 Containment System Drainage

Any liquids from leaks or spill will drain into the collection sump, which is pumped, to the TMF.

12.5.11.4 Containment System Capacity

The surface area of the floor in the MDM/CG is approximately 616 square feet. The total capacity of the secondary containment provided by the in-floor collection sump 9E (208 gallons) and curbed floor (2,304 gallons) is 2,512 gallons.

Subtracting the volume (600 gallons) held by the two agent tanks T3 and T4 yields a capacity of 1,912 gallons. Taking into account the requirement for the secondary containment system to have a capacity of ten percent of the liquids stored in containers, the maximum allowable storage of liquid is 19,120 gallons. However, the MDM/CG will only store a maximum of 10-ton containers (1700 gallons), or the equivalent, at any one time of liquid hazardous waste being staged for processing in the MPF.

12.5.11.5 Control of Run-on

Run-on into the MDF Building is prevented by the curbed perimeter of the base and the fact that this area is a totally enclosed, ventilated toxic operations area. Considering the maximum 24-hour, 25-year storm event and the location of the CAMDS facility, no flood potential exists.

12.5.11.6 Removal of Liquids from the Containment System

The collection sump is inspected at least once every 24 hours. The sump pump will remove any accumulated liquid as soon as it is discovered and transferred to tanks in the TMF or to containers. Liquid remains in the containment are no longer than 24 hours and is therefore removed in a timely manner.

12.5.12 Bulk Item Facility (BIF) Agent Drain Bay

The BIF is located on the northwest corner of the MDF building. The building is a ventilated, toxic operations area. The floor has a six-inch curb around the perimeter (except under the sliding door between the BIF and the MDF/BIF Airlock) and a 359-gallon collection sump (3B). This system provides secondary containment for containers of free liquid stored in this area.

One of the uses of the BIF is to transfer agent from bulk items, such as ton containers or spray tanks, to chemical agent tanks or pre-punched ton containers prior to treatment in the MPF. The BIF will also be used to segregate waste from drums and other containers into other drums or containers of like waste for future processing in the MPF. In addition, burn baskets for processing this waste in the furnace will be loaded from the segregated drums. It can also be used to store other wastes (liquid or solid) prior to treatment in the MPF. The maximum number of the containers that can be stored in this area is four-ton containers (680 gallons, net liquid volume). The maximum number of stored drums that can be stored is 30 55 – gallon drums (1,650 gallons), or equivalent.

12.5.12.1 Secondary Containment System Design and Operation

The BIF Drain Area is constructed with a reinforced concrete floor, steel panel walls and roof. The floor dimensions are approximately 12 feet 2 inches by 24 feet 2 inches for a total of 294 square feet. The floor is trenched and sloped to ensure proper drainage to sump 3B. Any wastes collected in the sump are pumped to the TMF storage tanks within 24-hours of detection.

The total capacity of the BIF secondary containment (the floor and the sump) is 1,459 gallons for a maximum liquid waste storage capacity of 14,590 gallons. The maximum volume of liquid waste to be stored in the BIF, based on30 55 – gallon drums, will be 1,650 gallons. Therefore, the maximum liquid waste storage capacity exceeds the potential waste volume.

12.5.12.2 Requirement for the Base or Liner to Contain Liquids

The base of the BIF consists of a sealed, steel-reinforced concrete slab with a 6-inch curb along the entire perimeter. The center of the base has a collection trench, which leads to the sump. All surface areas of the base of the BIF are free of cracks or gaps.

The sealed, concrete floor prevents waste migration. This storage area building consists of a curbed concrete base with a steel frame, metal skinned structure. Thus the base does not receive precipitation.

The base was designed with sloped floors to the collection trench and sump. The sloped floor and sump are constructed from a continuous pour of concrete on a reinforced

concrete foundation. The base is inspected weekly, while hazardous waste is being stored, for cracks, gaps or deterioration.

12.5.12.3 Containment System Drainage

The floor of the BIF slopes to the collection sump. Any liquids from leaks or spills will drain into the collection trench at the center of the floor due to the sloped design. Any liquids from leaks or spills will drain into the collection sump, which is pumped, to the TMF storage tanks.

12.5.12.4 Control of Run-on

Run-on into the BIF is prevented by the curbed perimeter of the base and the fact that this area is a totally enclosed, ventilated toxic operations area. Considering the maximum 24-hours, 25-year storm event and the location of the CAMDS facility, no flood potential exists.

12.5.12.5 Removal of Liquids from the Containment System

The collection sump is inspected at least once every 24 hours. The sump pump will remove any accumulated liquid as soon as it is discovered and transferred to tanks in the TMF or to containers. Liquid remains in the containment area no longer than 24 hours and is therefore removed in a timely manner.

12.5.13 Multipurpose Demilitarization Facility Toxic Unpack Area (MDF Toxic UPA)

The Multipurpose Demilitarization Facility (MDF) Toxic Unpack Area (UPA) is located within the MDF/BIF building, which is adjacent to and contiguous with the MPF building. The MDF Toxic UPA is part of a ventilated toxic operations area.

Both liquids and solids can be stored in this area. Due to equipment configuration and facility use, a maximum of four 1-ton containers, or equivalent, will be stored in the MDF Toxic UPA at any one time. Each ton container has a capacity of approximately 170 gallons for a total of 680 gallons.

12.5.13.1 Secondary Containment System Design and Operation

The design of the MDF Toxic UPA provides for the secondary containment of liquids. The MDF Toxic UPA is constructed with a reinforced concrete floor, steel panel walls and roof. The building is heated and contains fire sprinkler and fire deluge systems. The entire building is painted inside with one (1) coat of Epoloid 7-W-20 Primer and two (2) coats of Epoloid 5-G-37 Cream to prevent waste migration into the concrete.

12.5.13.2 Requirement for the Base or Liner to Contain Liquids

The base of the MDF Toxic UPA consists of a reinforced concrete slab with a six-inch curb wall around the perimeter. All surface areas of the base of the MDF Toxic UPA are free of cracks or gaps. The base will be inspected weekly, while hazardous waste is being stored, for cracks, gaps, or deterioration. The facility, as described, adequately serves as secondary containment for hazardous waste liquids.

12.5.13.3 Containment System Drainage

The floor of the MDF Toxic UPA is sloped and trenched the large collection sump (3B) in the BIF area as described in the previous section.

12.5.13.4 Containment System Capacity

The secondary containment system for the MDF Toxic UPA consists of a 16 by 13-foot concrete floor with a six-inch curb wall around the perimeter and a small sump. The volume of the secondary containment system is calculated to be approximately 104 cubic feet, which equates to 778 gallons. This quantity is more than adequate to contain the entire capacity of hazardous waste liquids that may be stored in this facility.

12.5.13.5 Control of Run-on

Run-on into the MDF Toxic UPA is prevented because the area is totally enclosed in the building. The entrance used to move containers in and out of the area is sloped to prevent any run-on.

12.5.13.6 Removal of Liquids from the Containment System

Removal of the liquids from sump 3B is discussed in the previous section.

12.5.14 Multipurpose Demilitarization Facility/ Bulk Item Facility Airlock (MDF/BIF Airlock)

The MDF/BIF Airlock is located within the MDF/BIF building, which is adjacent to and contiguous with the MPF building. The MDF/BIF Airlock is part of a ventilated toxic operations area.

The MDF/BIF Airlock will be used to segregate waste from drums and other containers into other drums or containers of like waste for future processing in the MPF. In addition, burn baskets for processing this waste in the furnace will be loaded from the segregated drums. Both liquids and solids can be stored in the area. Due to equipment configuration and facility use, a maximum of four ton containers, or27 55 – gallon drums, of waste can be stored in the MDF/BIF Airlock at any one time. Each ton container has a capacity of approximately 170 gallons for a total of 680 gallons, and 27 55 – gallon drums have a capacity of 1,485 gallons.

12.5.14.1 Secondary Containment System Design and Operation

The design of the MDF/BIF Airlock provides for the secondary containment of liquids. The MDF/BIF Airlock is constructed with a reinforced concrete floor, steel panel walls and roof. The building is heated and contains fire sprinkler and fire deluge systems. The entire building is painted inside with two coat of gray Epoloid 7-W-20 Primer to prevent waste migration into the concrete.

12.5.14.2 Requirement for the Base or Liner to Contain Liquids

The base of the MDF/BIF Airlock consists of a reinforced concrete slab with a six-inch curb wall around the perimeter. All surface areas of the base of the MDF/BIF Airlock are free of cracks or gaps. The base will be inspected weekly, while hazardous waste is being stored, for cracks, gaps, or deterioration. The facility, as described, adequately serves as secondary containment for hazardous waste liquids.

12.5.14.3 Containment Systems Drainage

The floor of the MDF/BIF Airlock is sloped and trenched toward the large collection sump (3B) in the BIF area.

12.5.14.4 Containment Systems Capacity

The secondary containment system for the MDF/BIF Airlock consists of a 15.3 by 18.5-foot concrete floor with a six-inch curb wall around the perimeter. The volume of the secondary containment system is calculated to be approximately 142.5 cubic feet, which equates to 1059 gallons. This quantity is more than adequate to contain the ten percent of the capacity of hazardous waste liquids that may be stored in this facility (1,485gallons).

12.5.14.5 Control of Run-on

Run-on into the MDF/BIF Airlock is prevented because the entrances to the area are all interior to the MDF/BIF and floor has a six inch berm around the entire floor area except under the door between the unpack area and the MDM.. Just like the unpack area, the MDM has a berm around its perimeter except under the unpack door. In addition, the floor is sloped to drain into the sump.

12.5.14.6 Removal of Liquids from the Containment System

Removal of the liquids from the 3B is discussed in the previous section.

12.5.15 Multipurpose Demilitarization Facility/Bulk Item Facility Loading Area (MDF/BIF Loading Area)

The MDF/BIF Loading Area is located within the MDF/BIF building. The facility is adjacent to and contiguous with the MPF building.

The floor is painted inside with two coats of mastic to prevent waste migration into the concrete. Mastic is added as needed to prevent waste migration through the floor. A six-inch berm runs along three walls. A collection trench runs along the length of the fourth wall and adjacent to a roll up door which opens to the outside of the building.

The MDF/BIF Loading Area will be used to move waste drums and other containers into the BIF for waste segregation and burn basket loading for processing in the MPF. Both liquids and solids can be stored in the area. A maximum of ten, one-ton containers, or40 55 – gallon drums (on drip pans or in flexible secondary containment if containing free liquids), of waste can be stored in the MDF/BIF Loading Area at any one time. Each ton container has a capacity of approximately 170 gallons. The total liquid storage capacity of this unit will be 1,700 gallons for ton containers and 2,200 gallons for drums.

12.5.15.1 Secondary Containment System Design and Operation

Drip pans/flexible systems and overpacks will provide secondary containment for liquid hazardous waste stored in this area.

An additional feature of the facility is the collection sump (9A) and a collection trench (9B). The floor is sloped to drain to this system, which has a capacity of 61 gallons. Any liquids collected in this sump and trench are pumped into sump 3B in the BIF.

12.5.15.2 Requirement for the Base or Liner to Contain Liquids

The drip pans/flexible secondary containment and overpacks will be of watertight construction free of cracks, gaps, and deterioration.

12.5.15.3 Containment System Drainage

The drip pans/flexible systems and overpacks are self-contained. Wastes in the secondary containment system must be manually removed.

12.5.15.4 Containment System Capacity

The dimensions of the drip pans for ton containers are five feet by ten feet by one-half foot for a capacity of 187 gallons. The maximum capacity of a ton container is 170 gallons. The dimensions of drip pans for drums with free liquids are 56 inches by 56 inches by 5 inches, which equals a capacity of 68 gallons. The pallet placed inside the drip pan, and used to elevate the drums above any accumulated liquids, displaces a volume of approximately 12 gallons leaving a secondary containment system to contain the volume of the largest container (55 – gallon drum) inside the containment area.

12.5.15.5 Control of Run-on

Run-on is controlled by the collection sump (9A) and trench (9B). The trench runs along the outside door. The floor slopes to the trench and sump. Potential run-on is collected in this system and pumped to sump 3B and the BIF Drain Bay area. The total capacity of the system, sump and trench, is 61 gallons. In addition, the concrete pad outside the roll up door is sloped away from the building to prevent drainage into the facility.

12.5.15.6 Removal of Liquids from the Containment System

If liquid leaks into a drip pan/flexible secondary containment, operations personnel will transfer the liquid into approved hazardous waste containers or liquid collection system, such as sump 3B and the TMF tanks. All liquids collected in sump 9A or trench 9B are pumped to sump 3B.

12.5.16 MPF Charge Car Room

The MPF Charge Car Room is located directly between the MDM Conveyor Gallery Area and the Metal Parts Furnace (MPF) entry air lock. The MPF Charge Car Room is a toxic enclosure in the Multipurpose Demilitarization Facility (MDF and contains the Charge Car (a laterally movable conveyor mounted on rails) and sump 9F, which is

pumped to the TMF tanks via Sump 9E. The purpose of the MPF Charge Car is to transfer ton containers, burn baskets, and projectile trays between the MDM/CG, the MPF return conveyor, and the Metal Parts Furnace. Both liquids and solids can be stored in the area. The maximum number of bulk containers that will be stored in this area is one-ton container equivalent (170 gallons, net liquid volume).

12.5.16.1 Secondary Containment Systems Design and Operation

The design of the MPF Charge Car Room provides adequate secondary containment for liquid wastes.

12.5.16.2 Requirement for the Base or Liner to Contain Liquids

The base of the MPF Charge Car Room consists of a concrete floor with a 6-inch curb along the perimeter. A collection sump is located along the north wall. All surface areas of the base of the MPF Charge Car Room are free of cracks or gaps. The concrete floor is coated with 2 layers of Epoloid sealant to prevent waste migration through the floor

The base is inspected weekly, while hazardous waste is being stored, for cracks, gaps, or deterioration.

12.5.16.3 Containment System Drainage

Any liquids from leaks or spills will drain into the collection sump 9E, which is pumped, to the TMF tanks, via sump 9E.

12.5.16.4 Containment System Capacity

The secondary containment volume is located between the two rails. The floor between the rails slopes in both directions from the edges to the center, where the sump is located. The containment volume, including the 3-gallon sump capacity is 293 gallons.

Taking into account the requirement for the secondary containment system to have a capacity of ten percent of the liquids stored in containers, the maximum allowable storage of liquid is 2930 gallons. However, the MPF Charge Car Room will only store a maximum of one ton container or the equivalent (170 gallons) at any one time of liquid hazardous waste being staged for processing in the MPF.

12.5.16.5 Control of Run-on

Run-on into the MDF Building is prevented by the curbed perimeter of the base and the fact that this area is totally enclosed, ventilated toxic operations area. Considering the maximum 24-hour, 25-year storm event and the location of the CAMDS facility, no flood potential exists.

12.5.16.6 Removal of Liquids from the Containment System

The collection sump is inspected at least once every 24 hours using liquid level and moisture sensors. The sump will remove any accumulated liquid as soon as it is

discovered and transferred to tanks in the TMF or to containers. Liquid remains in the containment no longer than 24 hours and is therefore removed in a timely manner.

12.6 MANAGEMENT OF WASTE PILES

12.6.1 CAMDS Site Waste Pile Management

12.6.1.1 Containment Buildings

Waste piles will be kept in containment buildings. Before using a building for waste piles, the facility will be certified by a professional engineer that it meets the standards set forth in 40 CFR 264, Subpart DD and approved by the Executive Secretary. Facilities that do not meet these standards will not be used for waste pile storage. The ETF, SEG/ECC No.1 UPA, MTF, RSA, CTF, and TMF will be evaluated as potential containment buildings. A copy of all containment building certifications will be maintained on file at CAMDS. The maximum waste pile storage capacities for these facilities will be 120, 50, 7, 25, 50, and 25 cubic yards, respectively, if used.

12.6.1.2 List of Wastes

The waste piles will consist of scrap metal and solids. These wastes come from facility operations or closure activities. Operational wastes include discarded process equipment, scrap metal, wood and piping from construction activities. Closure wastes will include construction wastes such as concrete pieces, metal, piping, wood and scrap equipment. Waste piles at CAMDS are expected to be less than five cubic yards in most cases and more than one waste pile may be placed in an enclosed area. Waste piles displace available storage capacity for containerized wastes in these areas. Waste piles will not occupy space set aside for hazardous waste container storage. No incompatible wastes shall be placed into a single waste pile.

12.6.1.3 Protection from Precipitation

The waste piles are protected from precipitation by the roof, walls, curbing, and elevation of the building in which they are stored.

12.6.1.4 Free Liquids

Only material that is completely solid will be stored in waste piles. Liquids will be removed from all equipment before being put into waste piles. Liquids and materials containing free liquids will be containerized rather than placed in waste piles.

12.6.1.5 Run-on Protection

Since the waste piles will be stored in an elevated or curbed area, surface water run-on will not occur.

12.6.1.6 Wind Dispersal Control

The enclosed building prevents wind from dispersing any of the wastes in the waste piles. Additionally, the majority of components in the waste piles at CAMDS have a sufficient density and size, which would inhibit wind dispersal (i.e. scrap metal).

12.6.1.7 Leachate Generation

The waste piles will not generate leachate through decomposition or other reactions because they are compatible materials and protected from precipitation and run-on.

12.6.2 Additional Information - Management Methods for Determining the Amount of Wastes Stored in Waste Piles

All waste pile storage capacities throughout this permit application are presented in units of volume. The storage capacity for each waste pile was determined by considering the space designated for each waste pile.

Items shall be weighed accurately to the nearest pound prior to placement in a waste pile. For trackable items, such as equipment, the addition and removal of wastes to waste piles will be tracked using individual tracking numbers, item name, and item weight. For non-trackable waste, such as non-containerized construction waste, the volume added to and removed from the pile will be recorded in the operating log. During the inventory process, the wastes added to the pile will be checked for liquids. Liquids will be removed from the waste prior to being put into the pile. In addition to other information required by regulations, the tracking number, item name, and item weight are recorded in the operating record kept for each waste pile.

Choosing weight as a basis for tracking the amount of wastes added and/or removed from waste piles enables CAMDS and UDSHW compliance inspectors to track wastes as they are transferred from waste piles located in CAMDS to other HWMU located both on and off-site.

12.6.3 Additional Information - Verification of Decontamination Designation for 3X and 5X Wastes Stored in Waste Piles

Wastes associated with chemical warfare agent operations are required (through Army Regulations) to be given a certified decontamination designation before the wastes leave areas designated as Chemical Limited Areas. Chemical Limited Areas are fenced areas where structures storing chemical warfare agents/munitions are located. Examples of such areas located at DCD are CAMDS and Area 10. Wastes stored in waste piles located within CAMDS will not have decontamination designation tags because these wastes are still inside the Chemical Limited Area of CAMDS. Wastes that are 3X and 5X will be certified so prior to them leaving the Chemical Limited Area of CAMDS.